Revisiting the relationship between overactive bladder syndrome and the frequency-urgency syndrome

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Introduction

Prior to the definition of the overactive bladder syndrome (OAB) by the International Continence Society in 2002, investigators frequently described a comparable symptom complex as frequency-urgency syndrome. However, only limited data have tested in large populations whether urgency and frequency exhibit a stronger pairwise correlation than other pairs of OAB symptoms [1]. Therefore, we have analyzed baseline data from two recently reported, large non-interventional studies to explore the pair-wise correlations between urgency, frequency, nocturia and incontinence.

Methods and Materials

Baseline data from two non-interventional studies of similar design were analyzed [2]. Briefly, patients seeking medical treatment for OAB and being proposed treatment with a muscarinic antagonist by their physician were invited to participate. Daily incidence of urgency, nocturia and incontinence were calculated from voiding diaries as episodes/24 h. The daytime urinary frequency was calculated as total number of voids minus number of nocturnal voids. Associations between the four OAB parameters were analyzed by Spearman-Rank correlation, i.e. not assuming Gaussian distribution, using Spearman r and its 95% confidence interval (CI) to indicate strength of association.

Based on the proposal of a previous exploratory study [1], the present analyses were designed to be hypothesis-testing. The null hypothesis was that strength of the urgency-frequency correlation was similar to that of the other pairwise correlations between OAB symptoms. Rejection of the null hypothesis was assumed if the CI of the Spearman r for the urgency-frequency correlation did not overlap with those of the other pairwise comparisons. To further increase robustness, we used the data from two studies. While the decision to use the data from the two reported studies was made after the trial had been completed, the statistical analysis plan for the present analyses was finalized before any data related to such correlations had been inspected.

Results

Studies 1 and 2 included 1335 patients (median age: 68 years, 66% female) and 745 patients (median age: 69 years, 63% female), respectively. Pairwise correlations between intensity of symptoms in the two studies are shown in Tables 1 and 2.

Consistent across both datasets, the correlation between urgency and frequency was stronger (r = 0.4586 and 0.5209 in studies 1 and 2, respectively) than that of urgency with nocturia or incontinence or of incontinence with frequency or nocturia (r = 0.1893-0.3579 except for urgency-nocturia correlation in study 1 (r = 0.4301)). As the CIs for the urgency-frequency correlation did not overlap with those of the other pairwise correlations, the null hypothesis was rejected (except for the comparison with the urgency-nocturia correlation in study 1).

Discussion

The degree of relatedness in our two studies is quantitatively similar to that reported previously for a different dataset [1]. While all four OAB symptoms exhibit some degree of correlation, the association between urgency and frequency was stronger in each study (greater Spearman r) than that of the five other pairwise correlations within a study. Except for the urgency nocturia correlation in study 1, the CI of the Spearman r for the urgency-frequency correlation did not overlap with that of the five other pairwise correlations.

Table 1: Cross-wise correlations between baseline OAB symptom intensity in study 1. Data are shown as Spearman r [95% CI].

	Daytime frequency	Nocturia	Incontinence
Urgency	0.4586 [0.4102; 0.5044]	0.4301 [0.3803; 0.4775]	0.3167 [0.2607; 0.3706]
Daytime frequency	-	0.2175 [0.1637; 0.2700]	0.1893 [0.1311; 0.2463]
Nocturia	-	-	0.2828 0.2269; 0.3688]

Table 2: Cross-wise correlations between baseline OAB symptom intensity in study 2. Data are shown as Spearman r [95% CI].

	Daytime frequency	Nocturia	Incontinence
Urgency	0.5209 [0.4600; 0.5768]	0.3579 [0.2861; 0.4258]	0.3406 [0.2640; 0.4130]
Daytime frequency	-	0.2708 [0.2001; 0.3386]	0.3149 [0.2379; 0.3880]
Nocturia	-	-	0.2947 [0.2168; 0.3689]

Conclusions

Our data support the concept that OAB as defined by the International Continence Society is comparable to the previously used term frequency-urgency syndrome.

References

1. M. C. Michel et al. (2007) Neurourol Urodyn 26: 190-195
2. M. C. Michel et al. (2018) Neurourol Urodyn 37: S401-S402